

AMC

**US ARMY
TANK-AUTOMOTIVE AND ARMAMENTS
COMMAND
ARMAMENT RESEARCH, DEVELOPMENT AND
ENGINEERING CENTER
(TACOM-ARDEC)**



TACOM - ARDEC

***-Army Supportability –
Reducing Weapons & Munitions
Total Ownership Costs***

**Presented to
Systems Engineering &
Supportability Conference**

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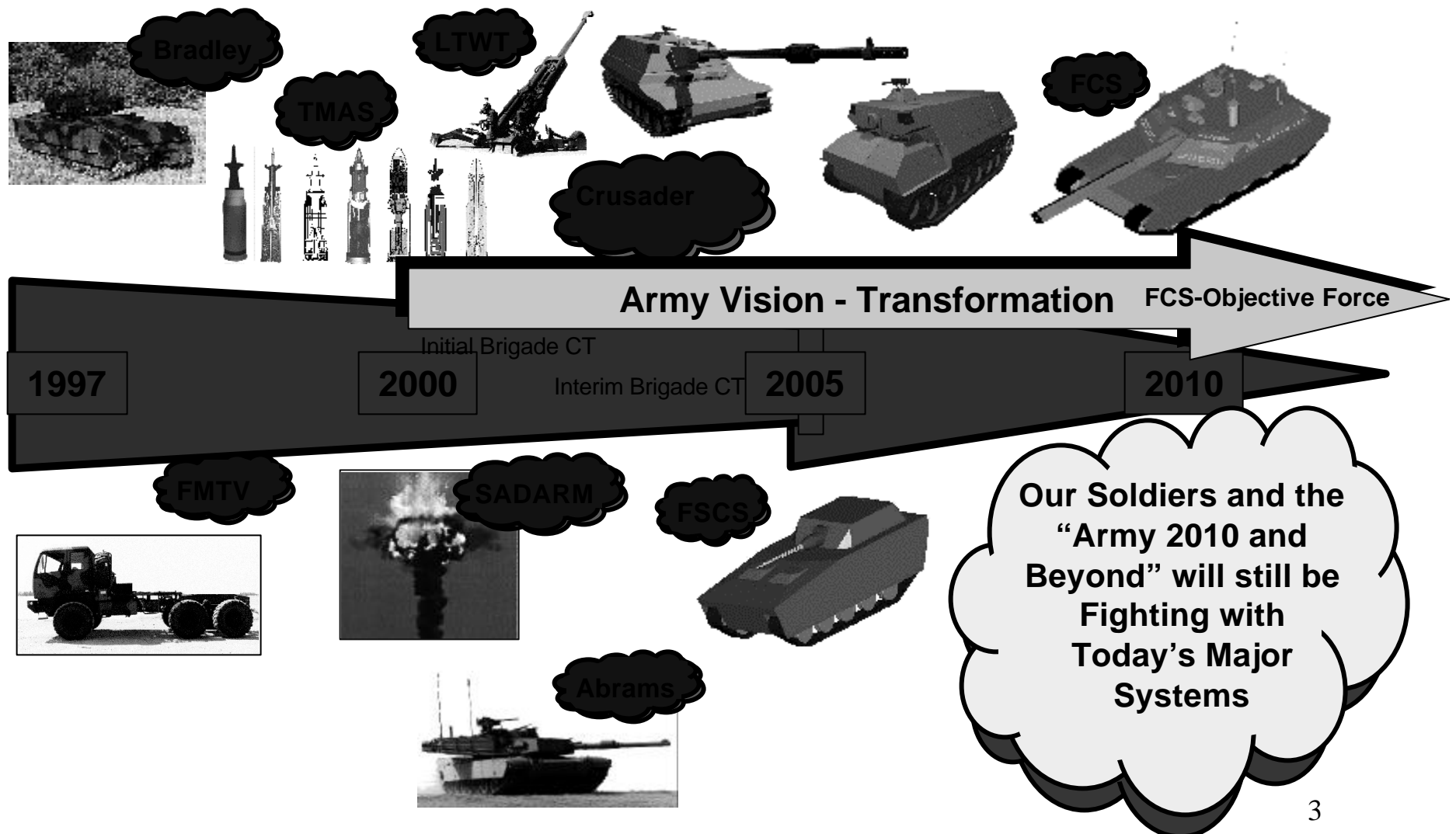
The Army Vision & Supportability

Take Technologies, As They Mature, And:

- ▶ **Apply to Fielded Systems:**
 - ◆ **Enhance Capability**
 - ◆ **Reduce O&S Costs to Generate \$\$ to Buy New Systems**
- ▶ **Apply to New Designs With Even Greater Capability While Reducing the Burden on the Soldier.**



The Environment



Addressing the Supportability Challenges

▶ **Design Excellence**

- Enhanced Reliability
- Improved Capability
- Increased Use of Modeling & Simulation

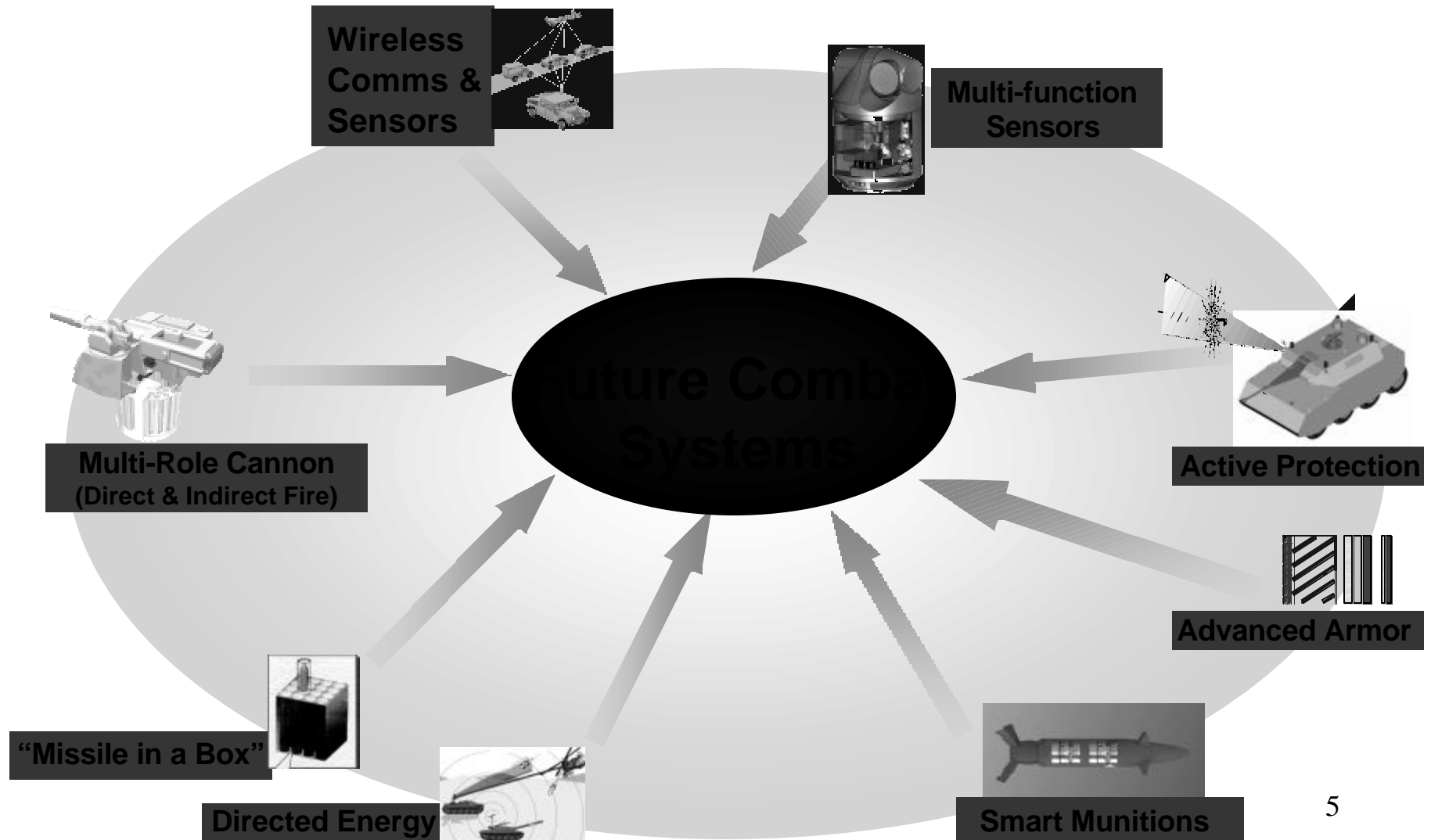
▶ **Surveillance & Maintenance**

- Obtain Feedback from the Field
- Evaluate Stockpiled Weapons & Munitions

▶ **Technology Insertion/Recapitalization -**

- Add New Capabilities
- Replace obsolete parts
- Standardize Components

- Design Excellence – Drawing from the Fullest Range of Technology Options



- Design Excellence – Simulation and Modeling for Acquisition, Requirements and Training

Crusader

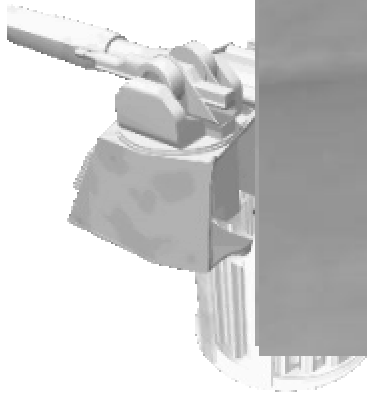
XM2001



Self-Propelled

Agile Redesign
Achieve Redu

Future Comb



Design Models Assist in Design

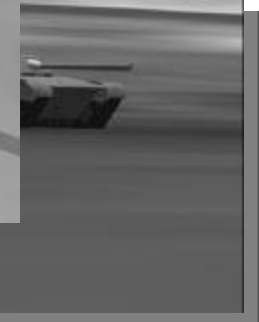


Obstacle Individual
Weapon



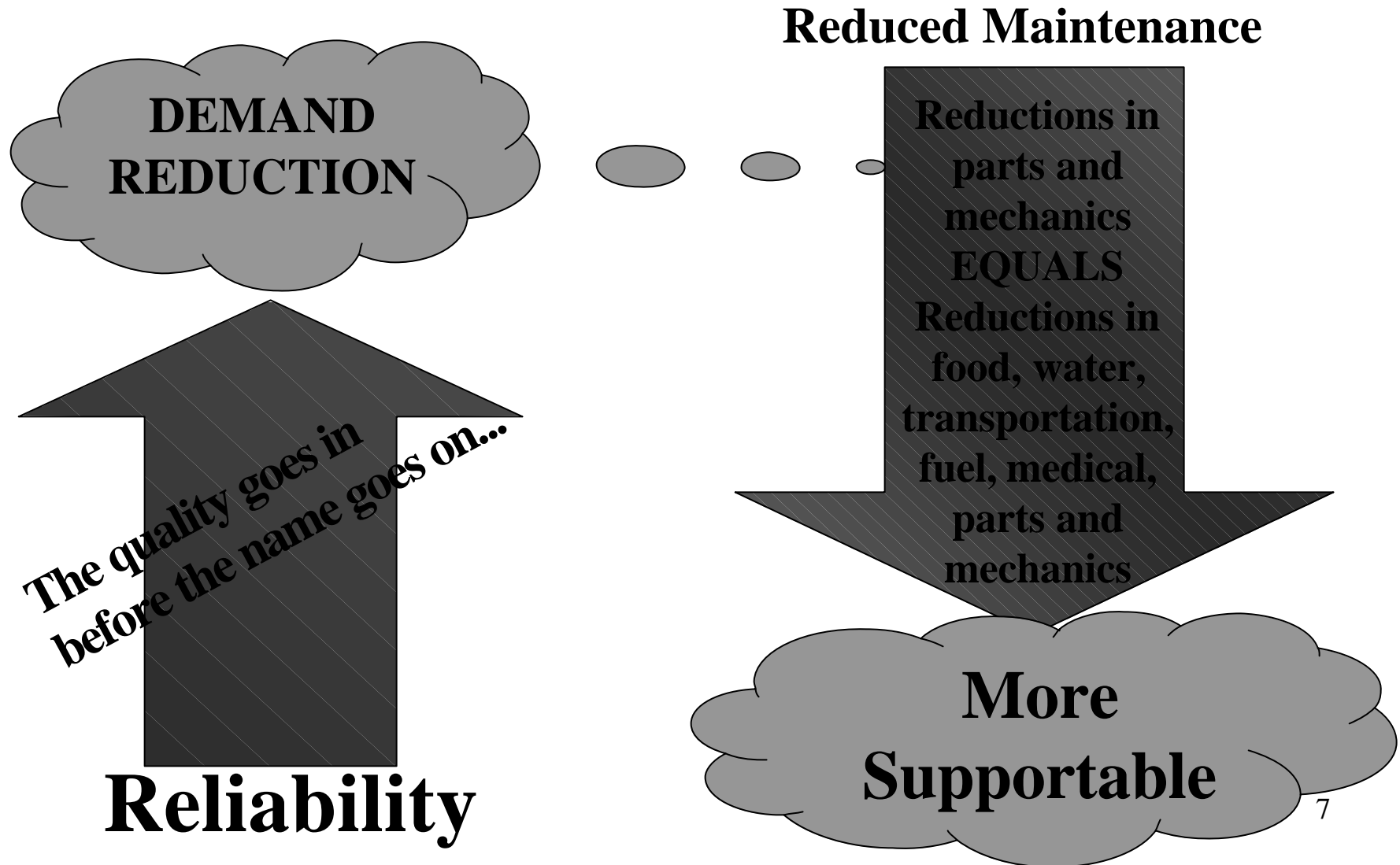
Engineering
and Training
em

MF / Raptor
t Minefields



Simulation of Life Cycle Activities of

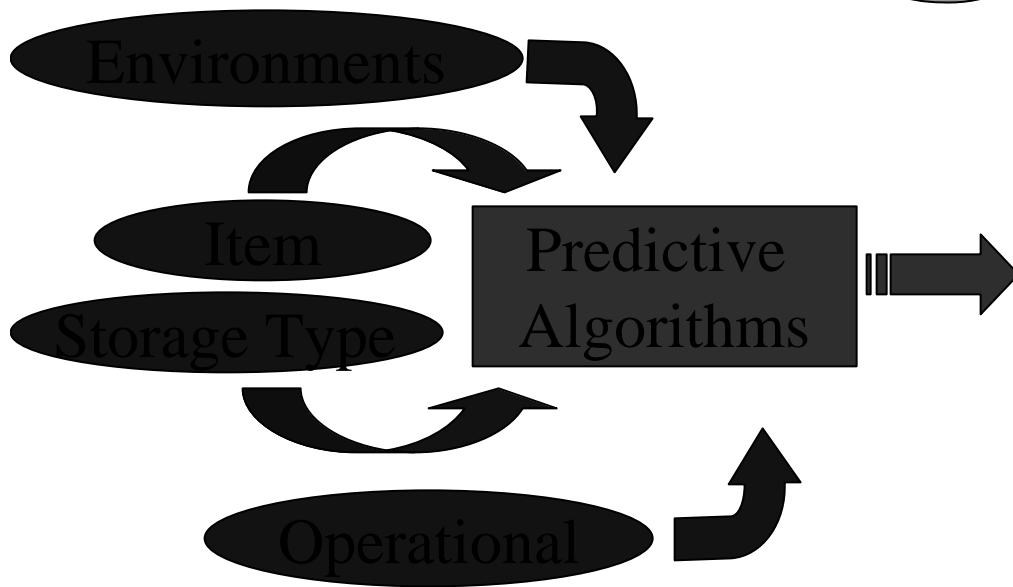
- Design Excellence – Reliability Improves System Supportability



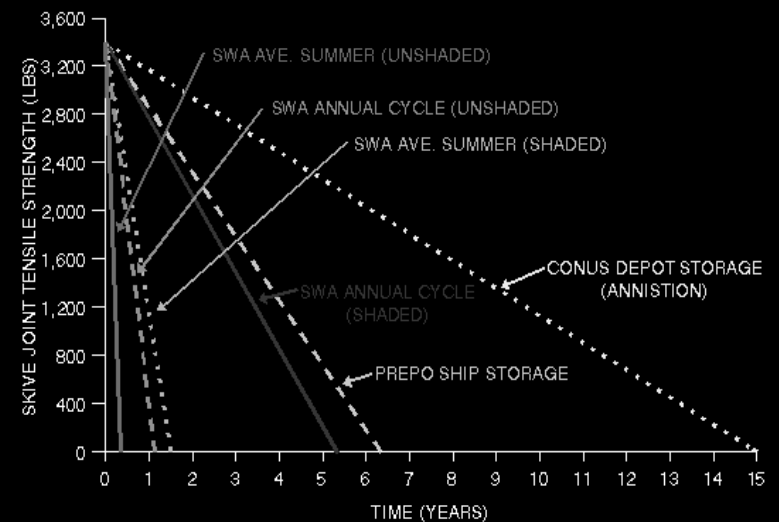
- Maintenance & Surveillance – Assessment of the Stockpile



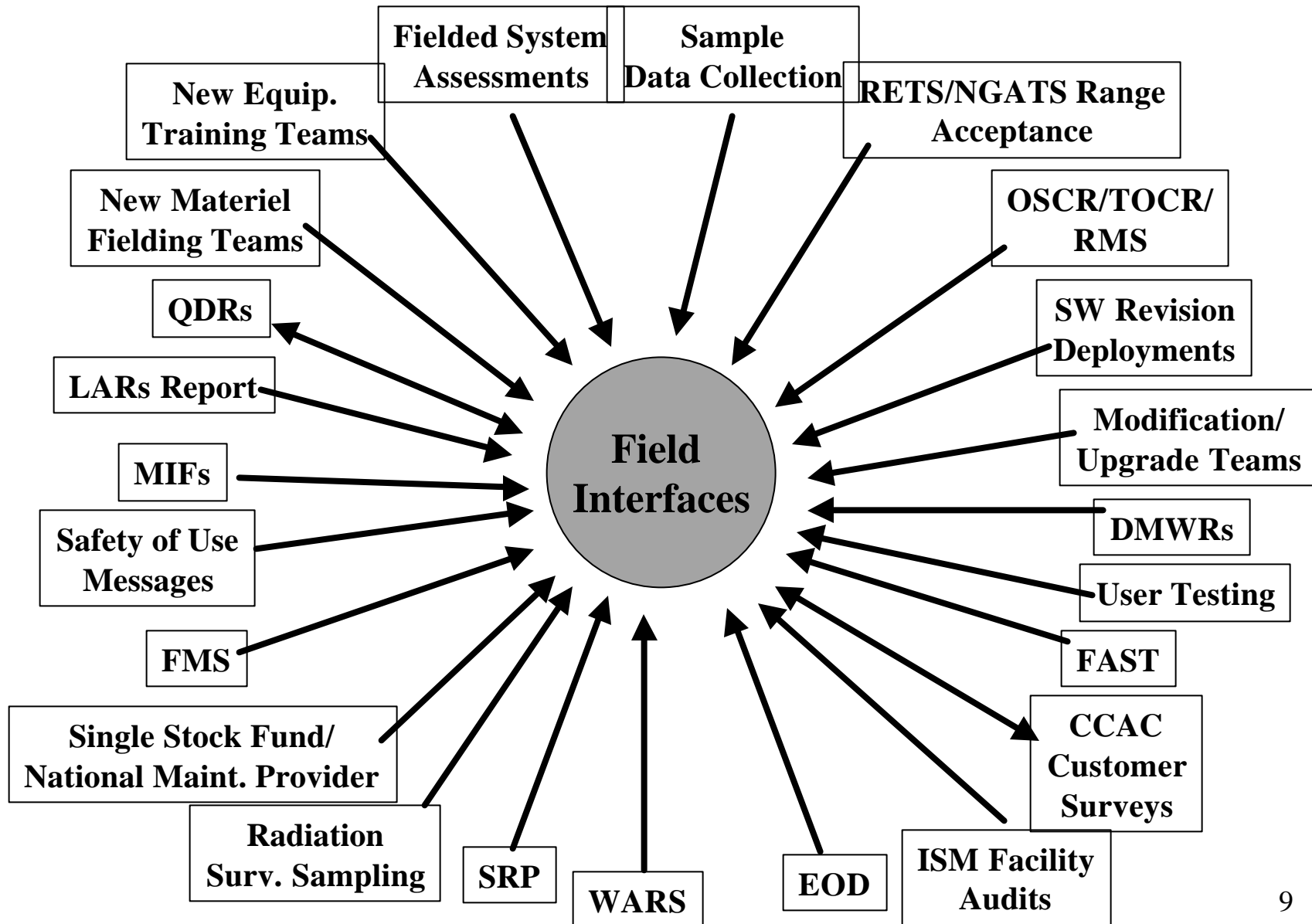
Assess Remaining
Useful Life



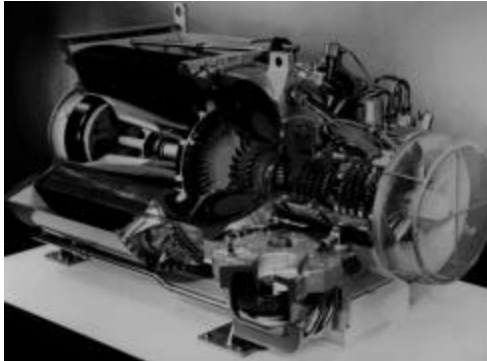
PREDICTED ADHESIVE JOINT TIME TO FAILURE
M829 IN PACKAGING
CONTAINER



- Maintenance & Surveillance – Obtain Feedback from the Field



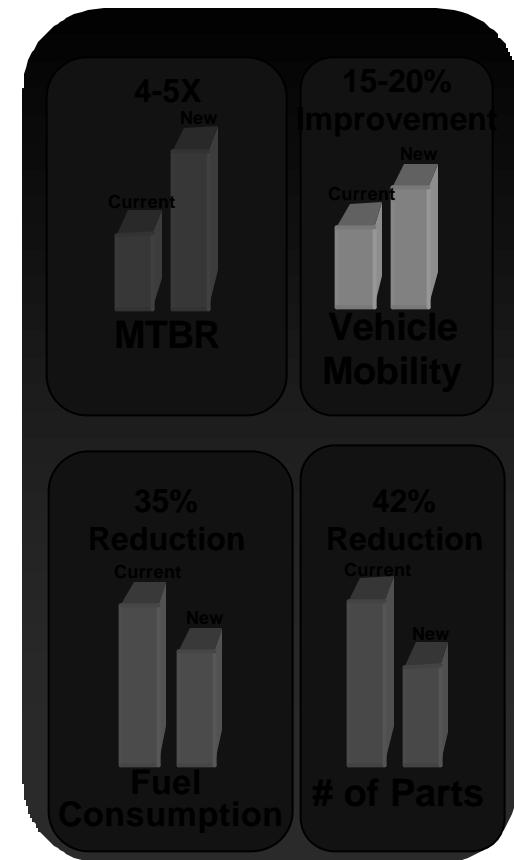
- Tech Insertion/Recapitalization – Common Components



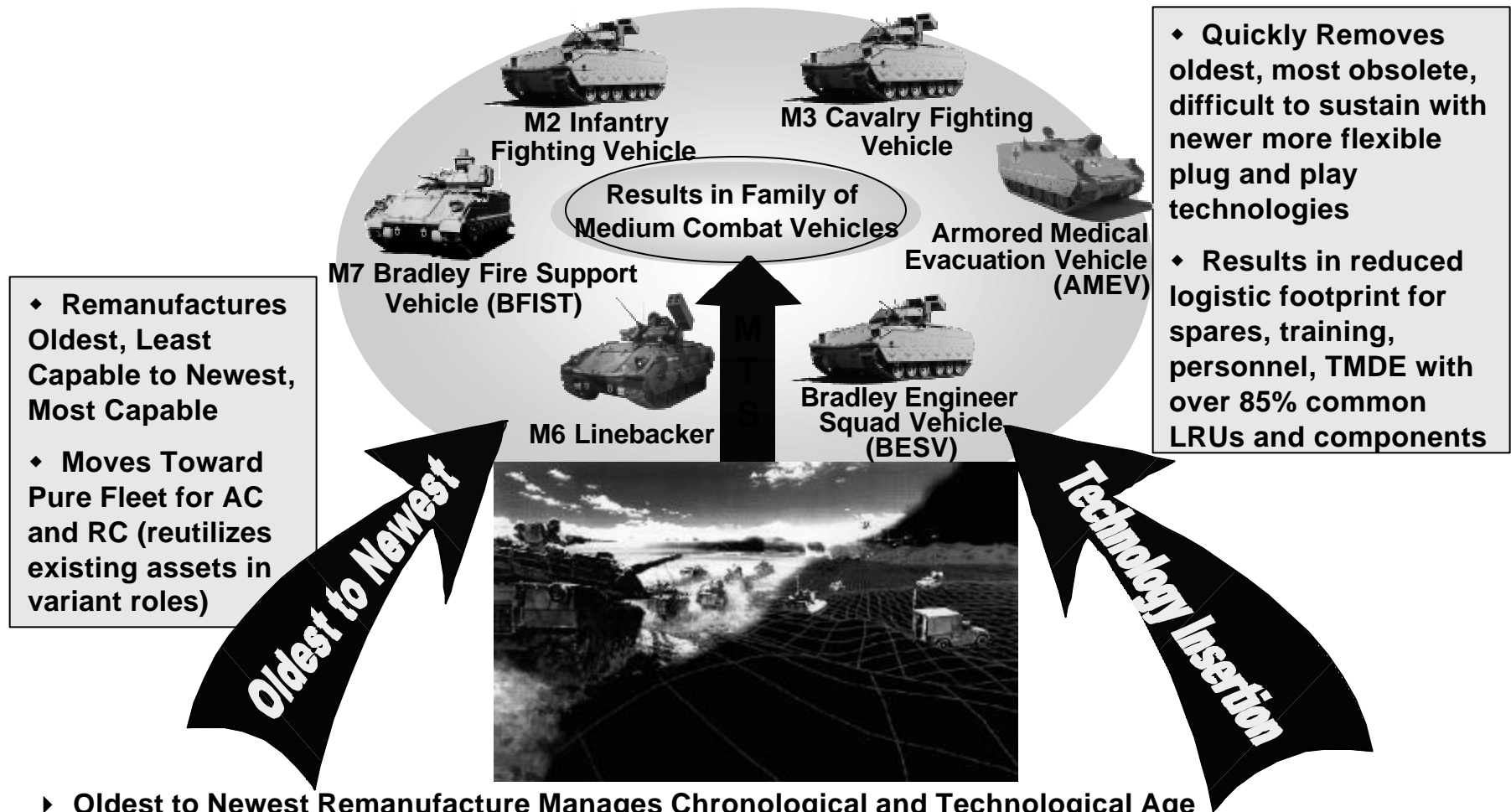
Abrams Tank Common Engine

Objectives and Requirements:

- Reduce Abrams Total Ownership Costs
- Reduce Crusader Systems Weight and Size
- Optimize Engine Commonality Between Abrams and Crusader
 - Training, Tools, TMDE etc.
- Mature Design Solution - Low risk transition to Production



- Tech Insertion/Recapitalization – Family of Vehicles Approach



- ▶ Oldest to Newest Remanufacture Manages Chronological and Technological Age
- ▶ Common Family Approach Minimizes Fleet Logistics (Supply, Training, and Maintenance Burdens)
- ▶ Takes Advantage of Recapitalization of Older Systems to Provide New Capabilities
- ▶ Development of New Variants Provides Technology Carrier to Benefit All Family Variants

Issues Specific to the Weapons & Munitions World to Generate Discussion

- Performance specifications reduce cost but often have safety & supportability implications
- The current aging munitions stockpiles were produced with the “wooden round” concept and are hard to evaluate
- Harsh military storage environment accelerate degradation
- Munitions are now actively interacting on the digital battlefield creating more “system –of- systems” issues

